AneuRx and Cook Zenith). All five patients did well with no postoperative bleeding and were discharged home in good condition.

Conclusions: Endovascular repair of arterial injuries offers a safe and less invasive alternative in patients with these types of injuries.

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R1: Paper Session I

RR1.

Derivation and Validation of a Practical Risk Score for Mortality After Repair of Ruptured Abdominal Aortic Aneurysms and Comparison to Existing Models in a U. S. Regional Cohort

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Objectives: Published models for predicting mortality after repair of ruptured abdominal aortic aneurysms (rAAA) have not been tested in the United States. Using prospectively-collected data from the Vascular Study Group of New England (VS GNE), we aimed to develop a practical risk score for in-hospital mortality after repair of rAAA and compare it to the Glasgow Aneurysm Score, Hardman Index, and Vancouver Score.

Methods: 242 patients underwent open repair of RAAA at 11 centers from 2003-2009. The VS GNE cohort was randomized to a derivation (n = 164) and validation set (n = 78). Significant predictors of mortality on multivariable regression were assigned integer weights to generate a total risk score which was tested in the validation set. Discrimination and calibration of all models were assessed via area under the receiver-operator curve (c-statistic) and Hosmer-Lemeshow test.

Results: In-hospital mortality was 37% (n = 88). Age>76 (OR 5.3, 95% CI 2.8-10.1), cardiac arrest (OR 4.3, 95% CI 1.6-12), loss of consciousness (OR 2.6, 95% CI 1.2-6), and suprarenal aortic clamp (OR 2.4, 95% CI 1.3-4.6) were independently associated with mortality. Integer weights derived from the odds ratios were used to derive a total risk score (range 0-6) which accurately predicted mortality risk (9%, 20%, 42%, 60%, and 79% for scores of 0, 1, 2, 3, and ≥ 4 respectively). Discrimination and calibration were excellent in the derivation (c = .79) and validation (c = .75) sets ($p < 0.0001$). GAS (c = .75), Hardman Index (c = .72), and Vancouver Score (c = .76) predicted mortality ($p < 0.0001$) but less easily identified patients at highest risk of mortality.

Conclusions: Existing models predict mortality after rAAA repair in this cohort but are limited in identification of patients at highest risk. This parsimonious VS GNE risk score based on four variables readily assessed in current practice allows accurate prediction of in-hospital mortality after open repair of rAAA.

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RR2.

Outcome of EVAR for Small Abdominal Aortic Aneurysms: Results From a 5-Year Prospective Clinical Trial

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Objectives: To evaluate the outcomes of endovascular repair of abdominal aortic aneurysm (EVAR) in patients with small (<5.5cm) abdominal aortic aneurysms (AAAs).

Methods: A total of 156 patients enrolled in the prospective 5-year Talent eLPS trial were evaluated. Subgroup analyses were performed for patients with small (<5.5cm) AAAs and larger (>5.5cm) AAAs. Demographics, aneurysm morphology and perioperative endpoints were assessed. Safety and effectiveness endpoints were evaluated at 30 days, 1 year, and 5 years post procedure.

Results: Patients with small AAAs (n = 85) had similar age, gender, and medical risk profile compared to those with larger AAAs (n = 71). The proximal aortic neck in small AAA patients was longer (24.7 mm vs 20.7 mm, $p = 0.05$), less angulated (27.20 vs 34.2o, $p = 0.01$) and smaller (24.6 mm vs 26.1 mm, $p = 0.01$). Small AAA patients spent less time in the ICU (8.1 h vs 26.3h, $p = 0.03$) but other perioperative endpoints were similar. The small AAA group had a statistically significant higher rate of successful aneurysm treatment (96.8% vs 84.9%, $p = 0.04$) but no difference in all other effectiveness endpoints at 12 months. There were no differences in freedom from major adverse events (MAEs) at 30 days and 365 days. At five years, there are no differences in rates of migration, endoleaks, change in aneurysm diameter, or freedom from aneurysm-related mortality. Further subgroup analyses separating very small (<5.0cm, n = 55), small (5.1-5.4cm, n = 30) and larger (>5.5cm) AAA patients also showed no statistically significant differences in postoperative outcomes.

Conclusions: In a prospective clinical trial setting with long-term follow-up, patients with small (<5.5cm) AAAs had a higher rate of successful aneurysm treatment. This may be attributable to their more favorable aortic neck anatomy. However, all other long-term outcome parameters showed no difference compared to patients with larger AAAs.